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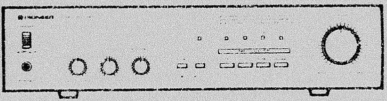
Service Manual



STEREO AMPLIFIER

A-110

MODEL A-110 COMES IN THREE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Power requirement	Export destination
HE	AC220V, 240V (switchable)	European continent
HB	AC220V, 240V (switchable)	United Kingdom
HEZ	AC220V, 240V (switchable)	West Germany

- This service manual is applicable to the HE, HB and HEZ types.
- As to the HB and HEZ types, please refer to pages 12–16.

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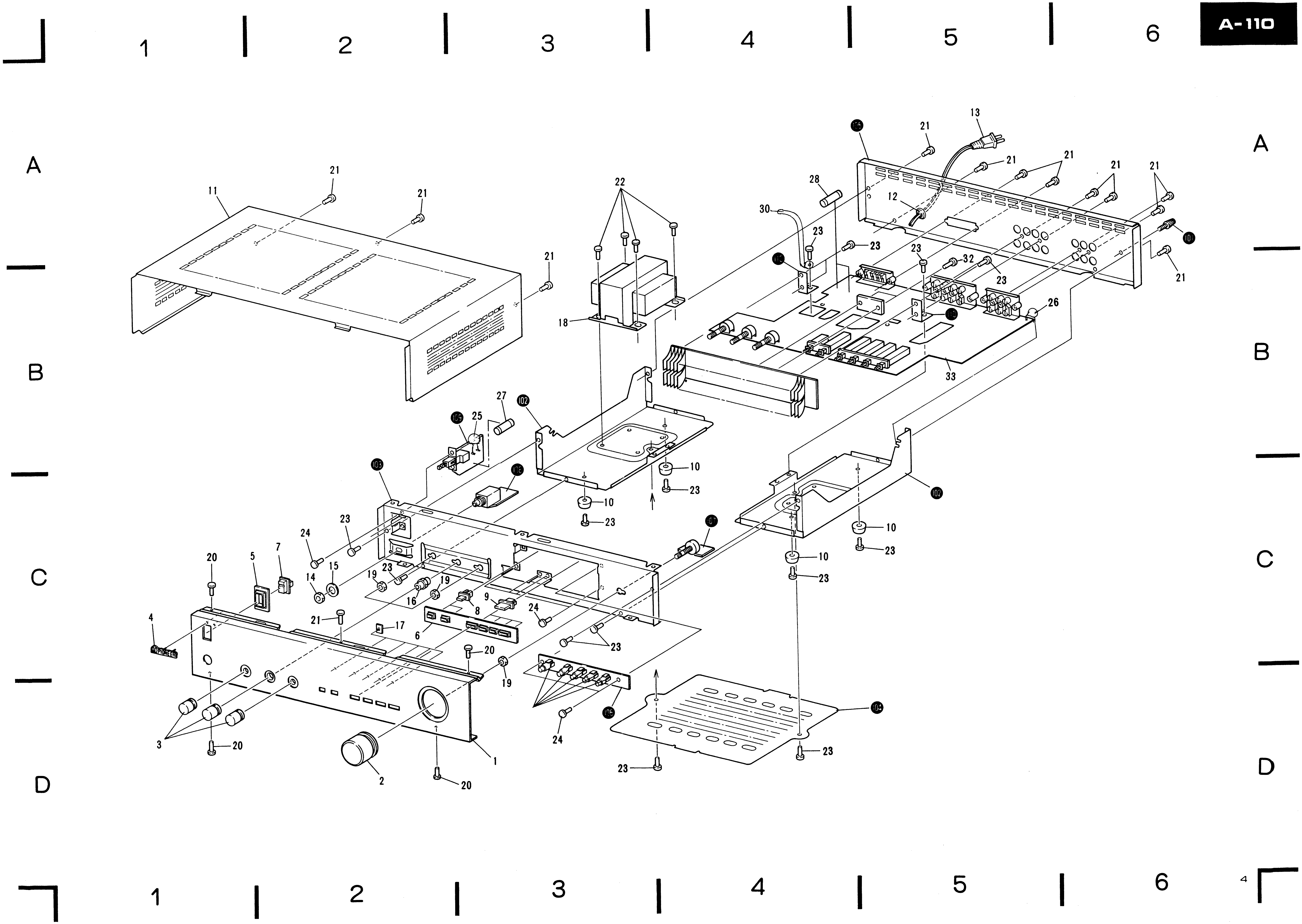
1. EXPLODED VIEWS AND PARTS LIST

NOTES:

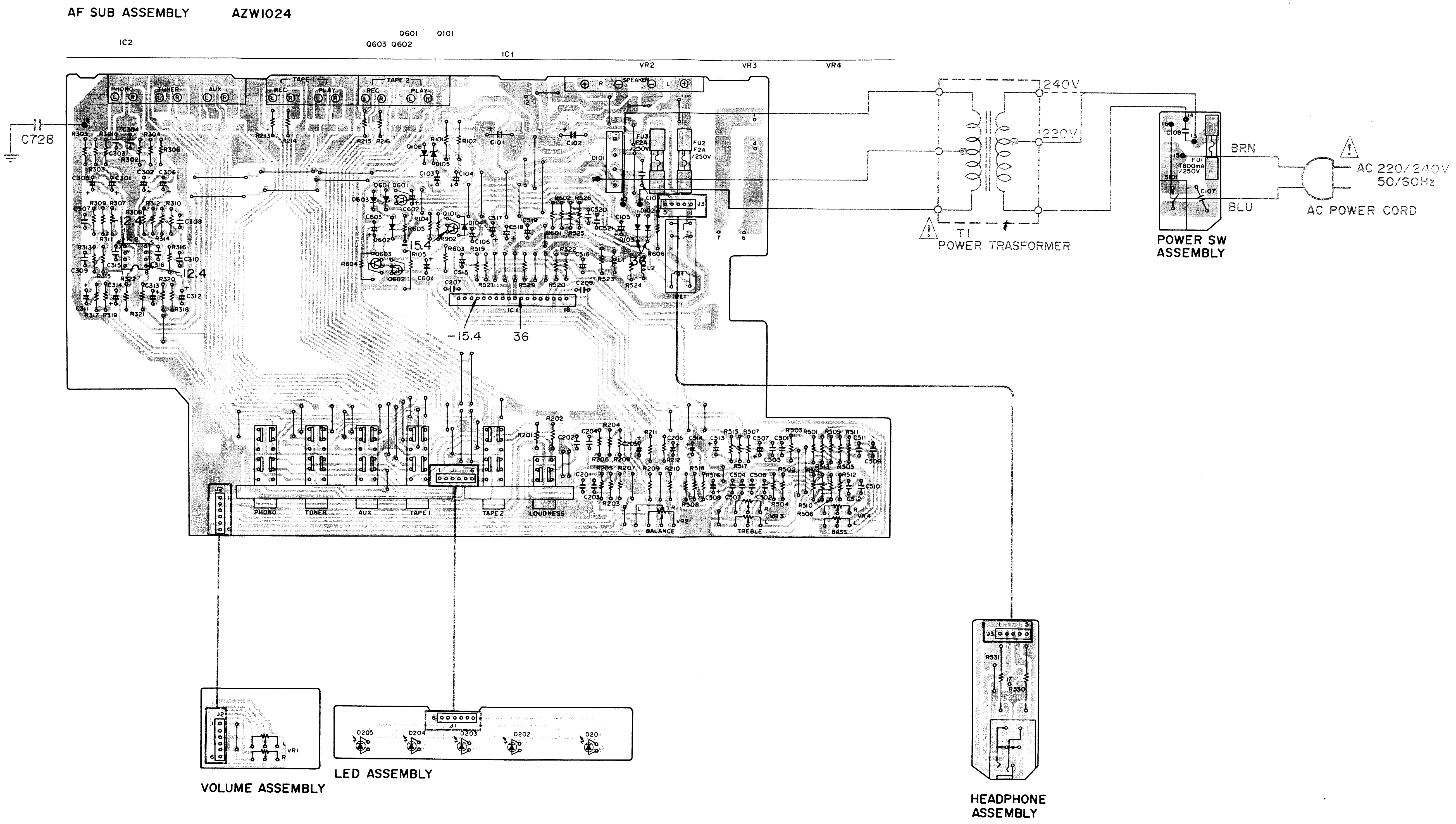
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

Mark	No.	Part No.	Description
	1	AZN1371	Front panel
	2	AZN1373	Volume knob
	3	AZN1380	Rotary knob
	4	AZN1068 (AAM-030)	Badge
	5	AZN1376	Power escutcheon
	6	AZN1372	Knob escutcheon
	7	AZN1377	Power knob
	8	AZN1378	Push knob "A"
	9	AZN1379	Push knob
	10	AZN1369	Foot
	11	AZN1366	Bonnet case
	12	AZN1370	Strain relief bushing
⚠	13	AZN1390 (ADG-041)	AC power cord
	14	AZB1111 (ABN-093)	Nut
	15	AZB1112	Washer
	16	AZB1109	Nut boss
	17	AZN1384	Indicator lens
⚠	18	AZT1028	Power transformer
	19	AZB1110 (NK70FUC)	Nut
	20	AZB1113 (BBZ30P080FZK)	Screw 3 x 8
	21	AZB1114 (VBZ30P080FZK)	Screw 3 x 8
	22	AZB1115 (VBZ40P080FMC)	Screw 4 x 8
	23	AZB1116 (VBZ30P080FMC)	Screw 3 x 8
	24	AZB1117 (PMZ30P080FMC)	Screw 3 x 8
⚠ ★★	25	AZC1035	Line across capacitor (C108) (0.01/400V)
	26	CKDYF473Z50	Capacitor (C728)
★★	27	AZE1032 (AEK-031) (AEK-507)	Fuse (FU1, T800mA/250V)
⚠ ★★	28	AZE1030 (AEK-035) (AEK-017)	Fuse (FU2, FU3, 2A/250V)
	29		....
	30	AZE1020	Cord fixer
	31		....
	32	AZB1119 (BBZ30P080FMC)	Screw
	33	AZW1024	AF sub assembly
	101		Earth terminal
	102		Side frame
	103		Panel stay
	104		Bottom plate
	105		Rear panel
	106		LED assembly
	107		Volume assembly
	108		Headphone jack assembly
	109		Power switch assembly
	110		Heat sink brket

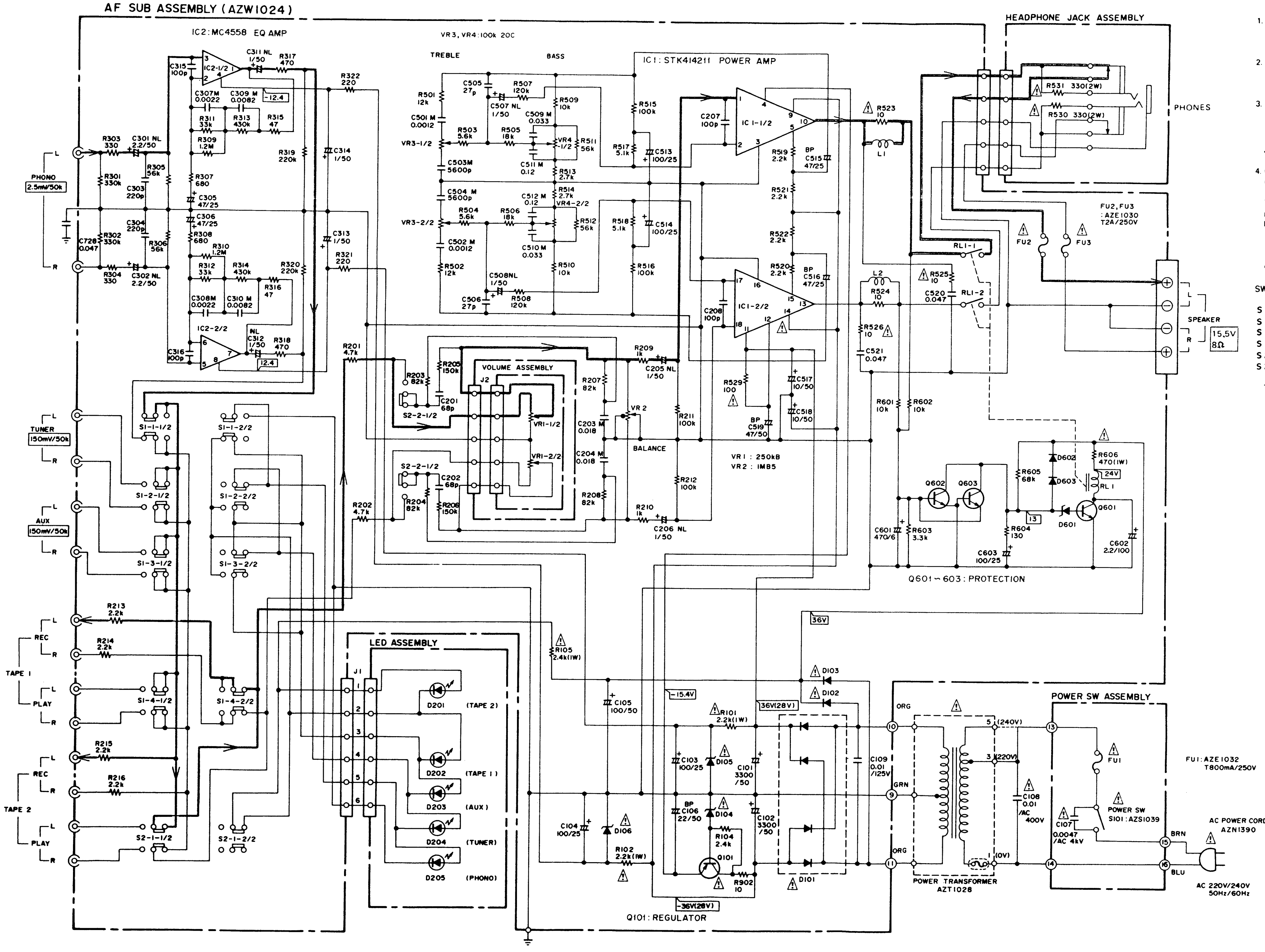

A
B
C
D

2. P.C. BOARDS CONNECTION DIAGRAM


A
B
C
D
AF SUB ASSEMBLY AZW1024
IC2
Q601 Q101
Q603 Q602
IC1
VR2
VR3
VR4
PHONO
TUNER
AUX
TAPE 1
REC
PLAY
TAPE 2
SPEAKER
R
L
C728
12.4
-15.4
12.4
-15.4
36
FU3 F2A /250V
FU2 F2A /250V
D101
D102
J3
RL1
J1
J2
PHONO
TUNER
AUX
TAPE 1
TAPE 2
LOUDNESS
BALANCE
TREBLE
BASS
240V
220V
T1
POWER TRASFORMER
C108
FU1 T800mA /250V
S101
C107
BRN
BLU
POWER SW ASSEMBLY
AC 220/240V 50/60Hz
AC POWER CORD
VR1
VOLUME ASSEMBLY
D205
D204
D203
D202
D201
LED ASSEMBLY
R531
R530
HEADPHONE ASSEMBLY
A
B
C
D

3. SCHEMATIC DIAGRAM

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.


AF SUB ASSEMBLY (AZW1024)
IC2: MC4558 EQ AMP
VR3, VR4: 100k 20C
TREBLE
BASS
IC1: STK4142II POWER AMP
HEADPHONE JACK ASSEMBLY
PHONES
PHONO 2.5mV/50k
TUNER 150mV/50k
AUX 150mV/50k
TAPE 1 REC PLAY
TAPE 2 REC PLAY
VOLUME ASSEMBLY
BALANCE
VR1: 250kB
VR2: 1MB5
LED ASSEMBLY
D201 (TAPE 2)
D202 (TAPE 1)
D203 (AUX)
D204 (TUNER)
D205 (PHONO)
Q601~603: PROTECTION
SPEAKER
15.5V 8Ω
FU2, FU3 : AZE1030 T2A/250V
POWER SW ASSEMBLY
POWER SW S101: AZS1039
FU1: AZE1032 T800mA/250V
AC POWER CORD AZN1390
AC 220V/240V 50Hz/60Hz
POWER TRANSFORMER AZT1028
Q101: REGULATOR

1. RESISTORS:
   Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
   Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT:
   ☐ : Signal voltage at (30W + 30W/8 ohm) out (1kHz)
   ☐ : DC voltage (V) at no input signal
   Value in ( ) is DC voltage at rated power.
   ⇦ mA : DC current at no input signal
4. OTHERS:
   ➡ : Signal route.
   ⊘ : Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ✳ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES

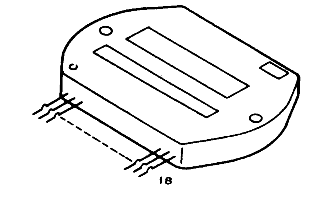
S 1-1	FUNCTION	(PHONO)	ON-OFF
S 1-2	FUNCTION	(TUNER)	ON-OFF
S 1-3	FUNCTION	(AUX)	ON-OFF
S 1-4	FUNCTION	(TAPE 1)	ON-OFF
S 2-1	TAPE 2		ON-OFF
S 2-2	LOUDNESS		ON-OFF

The underlined indication the switch position

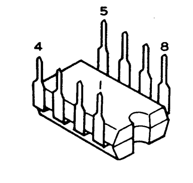
IC1	STK4142 II (STK4141 II)
IC2	MC4558C (UPC4558D)
Q101	KTA970GR (2SA933S)
Q601	KTC1627A (2SC3245)
Q602, Q603	KTC1815Y (2SC1740S)
D101	RS403L (4D4B44)
D102, D103	IN4003 (11E2)
D104	IN966 (RD16EB)
D105, D106, D601	IN964 (RD13EB)
D602, D603	IS2473
D201–D205	AZA1066
L1,2	AZT1027 (ATH-133)

External Appearance of Transistors and ICs

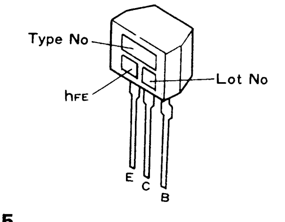
STK4142 II
STK4141 II



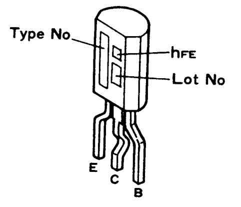
MC4558C
UPC4558D



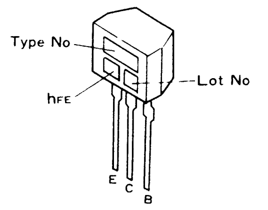
2SA933S


Type No
Lot No
hFE
E
C
B

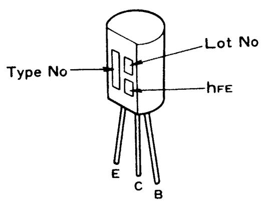
2SC3245


Type No
hFE
Lot No
E
C
B

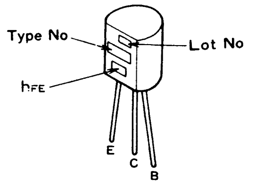
2SC1740S


Type No
Lot No
hFE
E
C
B

KTC1627A


Lot No
Type No
hFE
E
C
B

KTC1815Y
KTA970GR


Type No
Lot No
hFE
E
C
B

COILS

Mark	Symbol & Description	Part No.
	L1, L2 Chork coil (1μH)	AZT1027 (ATH-133)

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C101, C102 (3300μF/50V)	AZC1038 (ACH1017)
	C103, C104, C513, C514, C603	CEAS101M25
	C105	CEAS101M50
	C106	CEAS220M50
	C109	AZC1034
	C201, C202	CCDSL680J50
	C203, C204	CQMA183K50
	C205, C206, C311, C312, C507, C508	CEANL010M50
	C207, C208, C315, C316	CCDSL101J50
	C301, C302	CEANL2R2M50
	C303, C304	CCDSL221J50
	C305, C306	CEAS470M25
	C307, C308	CQMA222K50
	C309, C310	CQMA822K50
	C313, C314	CEAS010M50
	C501, C502	CQMA122K50
	C503, C504	CQMA562K50
	C505, C506	CCDSL270J50
	C509, C510	CQMA333K50
	C511, C512	CQMA124K50
	C515, C516	CEANP470M25
	C517, C518	CEAS100M50
	C519	CEANP470M50
	C520, C521	CKDYF473Z50
	C601	CEAS471M6
	C602	CEAS2R2M100

RESISTORS

Mark	Symbol & Description	Part No.
★	VR2 Variable resistor (BAL)	AZC1032
★	VR3, VR4 Variable resistor (BASS, TREBLE)	AZC1031
⚠	R101, R102	RS1LMF222J
⚠	R105	RS1LMF242J
⚠	R606	RS1LMF471J
⚠	R523–R526, R902	RD1/4PMFL100J
⚠	R529	RD1/4PMFL101J
	Other resistors	RD1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Push terminal (SPEAKERS)	AZK1048
	Ceramic pipe	AZE1034

LED Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★	D201–D205	AZA1066

OTHERS

Mark	Symbol & Description	Part No.
	LED holder	AZN1363

Headphone Jack Assembly

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R530, R531	RS2LF331J

OTHER

Mark	Symbol & Description	Part No.
	Headphone jack (PHONES)	AZK1045 (AKN-058)

Volume Assembly

RESISTOR

Mark	Symbol & Description	Part No.
★	VR1 Volume Variable resistor	AZC1030

Power Switch Assembly

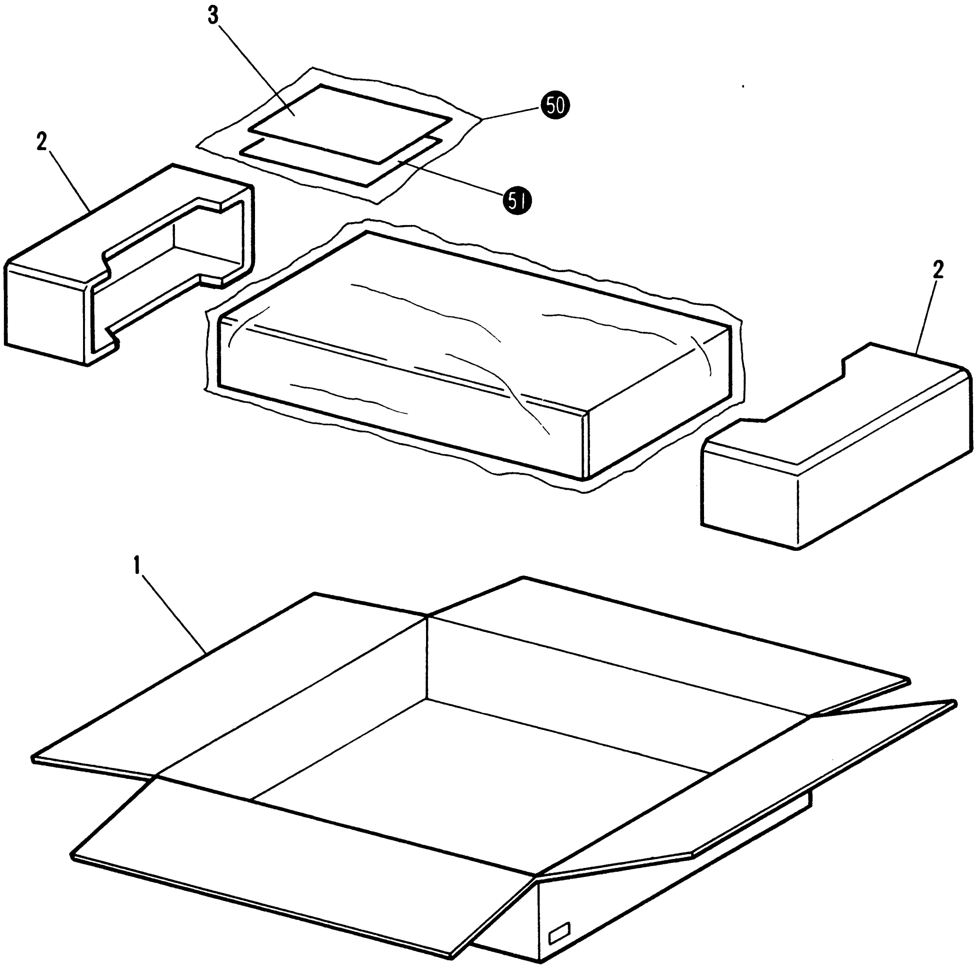
SWITCH

Mark	Symbol & Description	Part No.
⚠ ★★	S101 Push switch (POWER)	AZS1039

CAPACITOR

Mark	Symbol & Description	Part No.
⚠	C107 Line across capacitor (0.0047/AC4kV)	AZC1033

5. PACKING



Parts List of Packing

Mark	No.	Part No.	Description
	1	AZH1026	Packing case
	2	AZH1029	Side pad
	3	AZQ1011	Operating instructions
	50		Catalog bag
	51		Warranty card

6. FOR HB AND HEZ TYPES

CONTRAST OF MISCELLANEOUS PARTS

The A-110/HB and HEZ types is the same as the A-110/HE type with the exception of the following sections:

Mark	Symbol & Description	Part No.			Remarks
		A-110/ HE type	A-110/ HB type	A-110/ HEZ type	
	AF sub assembly	AZW1024	AZW1024	AZW1030	
	Headphone jack assembly	Non supply	Non supply	Non supply	
⚠ ★★	Fuse (800mA/250V)	AZE1032	....	AZE1032	
⚠ ★★	Fuse (630mA/250V)	....	AZE1031	....	
⚠	C108 Line across capacitor (0.01/400V)	AZC1035	AZC1035	....	
	C728 Capacitor	CKDYF473Z50	CKDYF473Z50	....	
	R709, R710 Carbon F resistor	....	....	RD1/4PM100J	
	C729 Ceramic capacitor	....	....	CKDYF223Z50	
	Operating instructions (English/German/French/Italian)	AZQ1011	....	....	
	Operating instructions (English)	....	AZQ1008	....	
	Operating instructions (German)	....	....	AZQ1012	
	Side pad	AZH1029	AZH1028	AZH1029	
⚠	AC power cord	AZN1390	AZN1383	AZN1390	
	Power switch assembly*	Non supply	Non supply	Non supply	

*** Marked P.C. board assemblies:**

Regard less differences on parts numbers, the P.C. board assemblies for the additional types are identical with the HE type.

AF SUB ASSEMBLY (AWZ1030)

The AF Sub assembly (AWZ1030) is the same as the AF Sub assembly (AWZ1024) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ1024	AWZ1030	
	R303, R304 Carbon resistor	RD1/4PM331J	RD1/4PM221J	
	R701–R708 Carbon resistor	....	RD1/8PM331J	
⚠	C108 Line across capacitor (0.01/400V)	....	AZC1035	
	C723, C724 Ceramic capacitor	....	CKDYB472J50	
	C315, C316, C701–C722	....	CKDYB331J50	

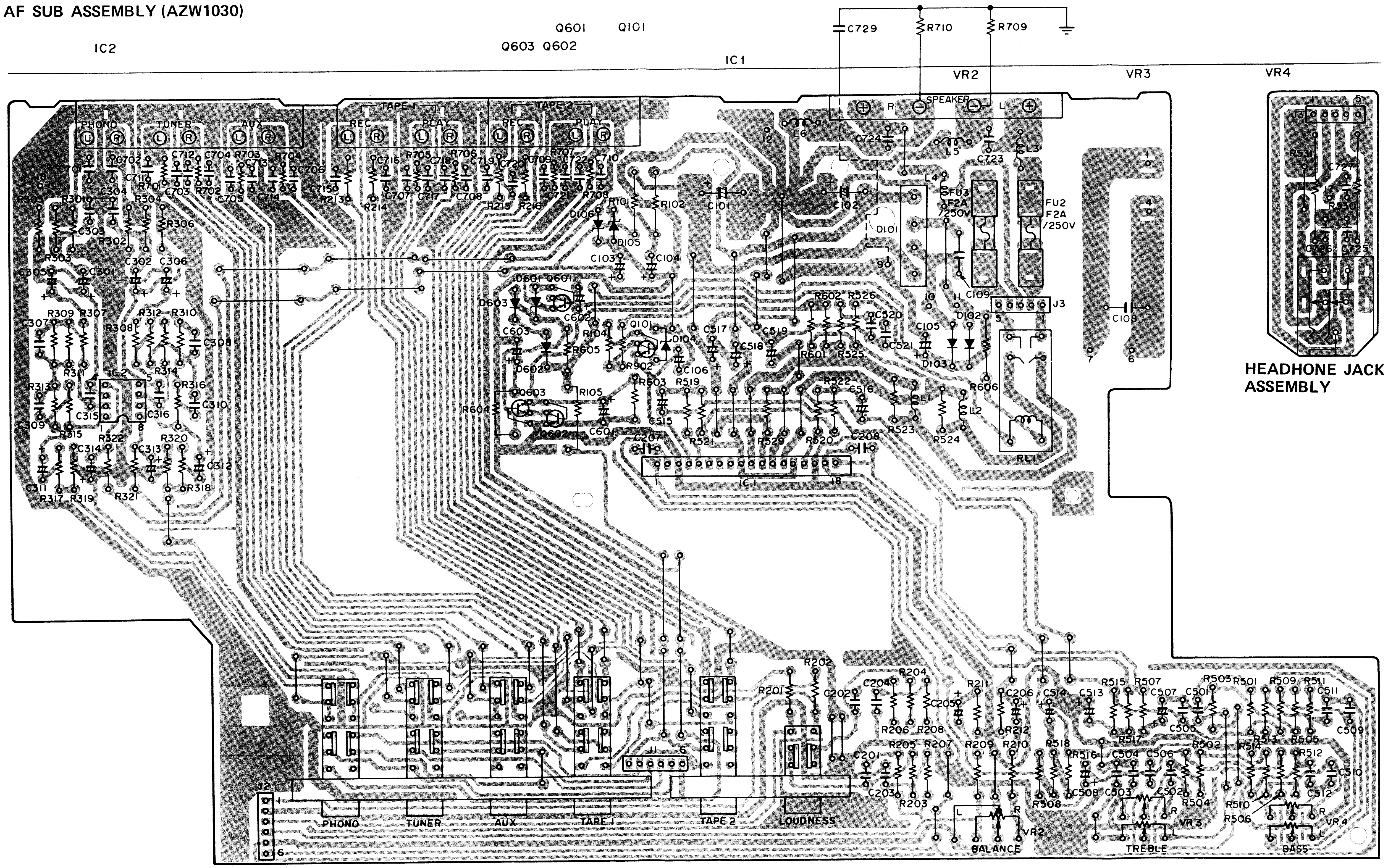
HEADPHONE JACK ASSEMBLY

The Headphone Jack assembly HEZ type is the same as the Headphone Jack assembly HE and HB type with the exception of following sections:

Mark	Symbol & Description	Part No.			Remarks
		HE type	HB type	HEZ type	
	C725–C727 Ceramic capacitor	....	....	CKDYB472K50	

7. P.C. BOARD PATTERNS (For HEZ type)

AF SUB ASSEMBLY (AZW1030)


1
2
3
4
5
6
A
B
C
D
Q601
Q101
Q603 Q602
IC2
IC1
C729
R710
R709
VR2
VR3
VR4
SPEAKER
R
L
PHONO
TUNER
AUX
TAPE 1
TAPE 2
REC
PLAY
L
R
C724
C723
L6
L5
L3
L4
FU3
F2A
/250V
FU2
F2A
/250V
C101
C102
D101
R101
R102
D106
D105
C103
C104
D601
Q601
D603
C602
C603
R104
Q101
D104
D602
R605
R902
C106
R603
R519
R105
Q603
R604
Q602
C601
C515
C207
R521
C517
C518
C519
R602
R526
C520
C521
R601
R525
C105
C109
D102
D103
J3
C108
R606
R522
C516
L1
L2
R523
R524
R529
R520
C208
RL1
IC1
1
18
C701
C702
C711
C712
C704
R703
C713
R704
C706
R701
C703
R702
C705
C714
C715
R213
R214
C716
R705
C718
R706
C719
C720
C709
C707
C717
C708
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C710
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R316
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C309
C315
C316
R315
C314
R322
C313
R320
C312
C311
R317
R319
R321
R318
IC2
J2
1
6
PHONO
TUNER
AUX
TAPE 1
TAPE 2
LOUDNESS
R202
R204
C204
R201
C202
C205
R206
R208
R205
R207
C201
C203
R203
R211
C206
C514
R212
R209
R210
R518
R516
R508
C508
C504
C506
C503
C502
R504
R515
R507
C513
C507
C501
C505
R517
R503
R501
R509
R511
C511
C509
R502
R514
R513
R505
R512
C510
C512
R510
R506
BALANCE
TREBLE
BASS
VR2
VR3
VR4

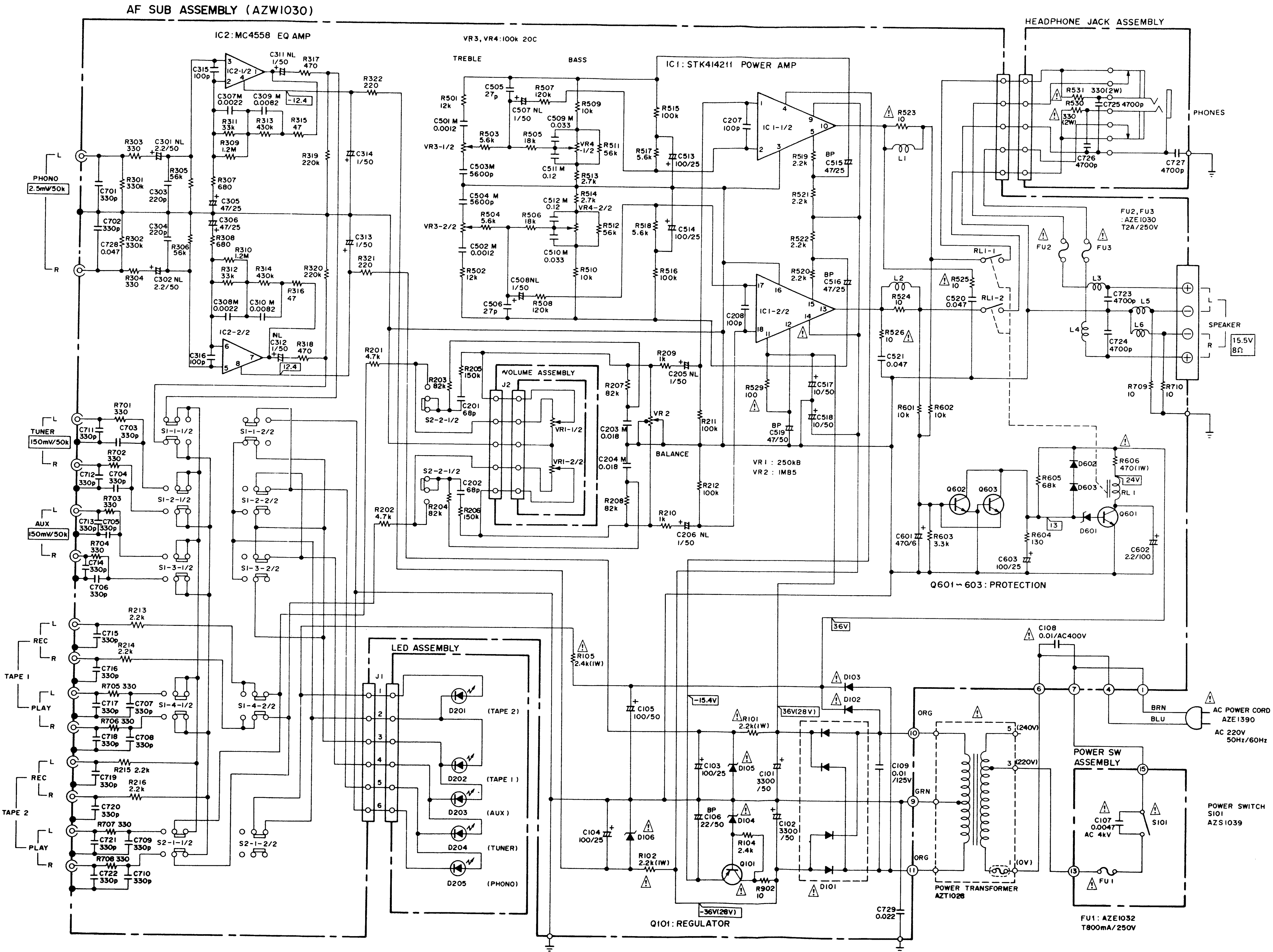
J3
1
5
R531
C727
R530
C726
C725

HEADHONE JACK ASSEMBLY

8. SCHEMATIC DIAGRAMS

- For HEZ type

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.


AF SUB ASSEMBLY (AZW1030)
IC2: MC4558 EQ AMP
VR3, VR4: 100k 20C
TREBLE
BASS
IC1: STK414211 POWER AMP
HEADPHONE JACK ASSEMBLY
PHONES
PHONO
2.5mV/50k
L
R
TUNER
150mV/50k
AUX
150mV/50k
TAPE 1
REC
PLAY
TAPE 2
S1-1-1/2
S1-1-2/2
S1-2-1/2
S1-2-2/2
S1-3-1/2
S1-3-2/2
S1-4-1/2
S1-4-2/2
S2-1-1/2
S2-1-2/2
S2-2-1/2
S2-2-1/2
VOLUME ASSEMBLY
J2
VR1-1/2
VR1-2/2
VR 2
BALANCE
VR1: 250kB
VR2: IMB5
LED ASSEMBLY
J1
D201 (TAPE 2)
D202 (TAPE 1)
D203 (AUX)
D204 (TUNER)
D205 (PHONO)
RL1-1
RL1-2
FU2
FU3
FU2, FU3
: AZE1030
T2A/250V
SPEAKER
15.5V
8Ω
Q601~603: PROTECTION
Q601
Q602
Q603
D601
D602
D603
RL 1
24V
36V
-15.4V
36V(28V)
-36V(28V)
Q101: REGULATOR
D101
D102
D103
D104
D105
D106
C108
0.01/AC400V
ORG
GRN
BRN
BLU
AC POWER CORD
AZE1390
AC 220V
50Hz/60Hz
5 (240V)
3 (220V)
1 (0V)
POWER TRANSFORMER
AZT1028
POWER SW ASSEMBLY
C107
0.0047
AC 4kV
S101
FU1
POWER SWITCH
S101
AZS1039
FU1: AZE1032
T800mA/250V
R105
2.4k(1W)
R101
2.2k(1W)
R102
2.2k(1W)
R104
2.4k
R902
10
C101
3300
/50
C102
3300
/50
C103
100/25
C104
100/25
C105
100/50
C106
22/50
C109
0.01
/125V
C729
0.022
R523
10
L1
L2
L3
L4
L5
L6
R709
10
R710
10
R531 330(2W)
R530 330(2W)
C725 4700p
C726 4700p
C727 4700p
C723 4700p
C724 4700p
R605 68k
R606 470(1W)
R604 130
R603 3.3k
C601 470/6
C602 2.2/100
C603 100/25
R601 10k
R602 10k

1. RESISTORS:
   Indicated in Ω, ¼W, ⅙W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
   Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT:
   ☐ : Signal voltage at (30W + 30W/8 ohm) out (1kHz)
   ☐ : DC voltage (V) at no input signal
   Value in ( ) is DC voltage at rated power.
   ⇦ mA : DC current at no input signal
4. OTHERS:
   ➡ : Signal route.
   ⊘ : Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ⁎ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

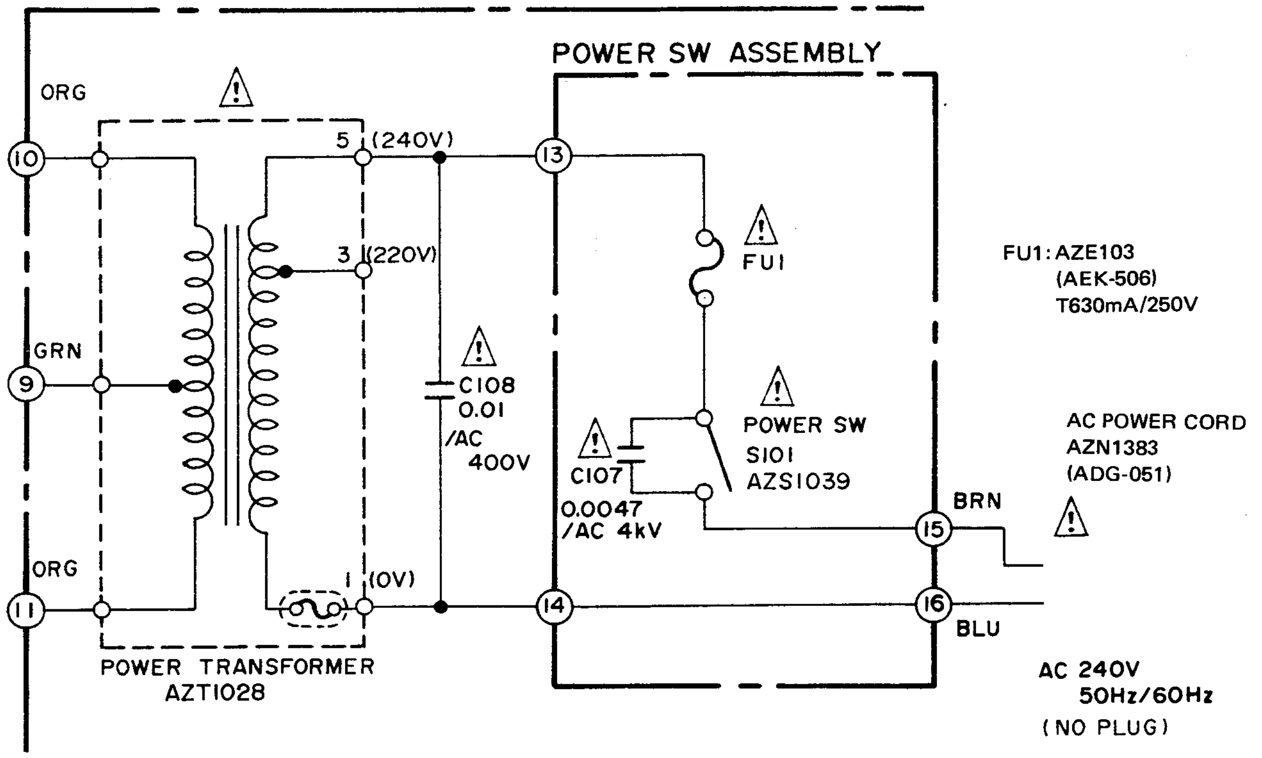
SWITCHES

S1-1	FUNCTION	(PHONO)	ON-OFF
S1-2	FUNCTION	(TUNER)	ON-OFF
S1-3	FUNCTION	(AUX)	ON-OFF
S1-4	FUNCTION	(TAPE 1)	ON-OFF
S2-1	TAPE 2		ON-OFF
S2-2	LOUDNESS		ON-OFF

The underlined indication the switch position

IC1	STK4142 II (STK4141 II)
IC2	MC4558C (UPC4558D)
Q101	KTA970GR (2SA933S)
Q601	KTC1627A (2SC3245)
Q602, Q603	KTC1815Y (2SC1740S)
D101	RS403L (4D4B44)
D102, D103	IN4003 (11E2)
D104	IN966 (RD16EB)
D105, D106, D601	IN964 (RD13EB)
D602, D603	IS2473
D201–D205	AZA1066
L1,2	ATZ1027 (ATH-133)

- **For HB type**

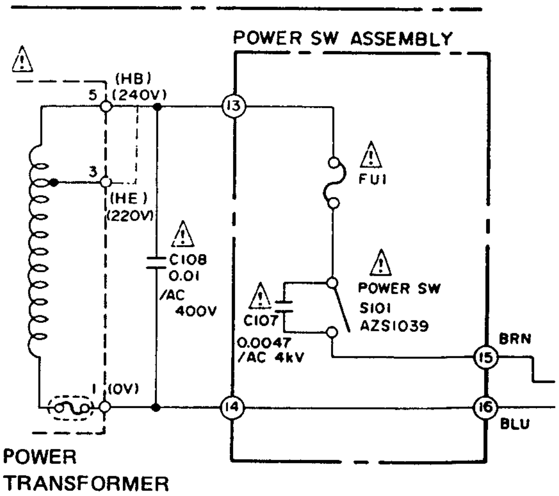

ORG
10
GRN
9
ORG
11
5 (240V)
3 (220V)
1 (0V)
POWER TRANSFORMER
AZT1028
C108
0.01
/AC
400V
POWER SW ASSEMBLY
13
14
FU1
POWER SW
S101
AZS1039
C107
0.0047
/AC 4kV
15
16
BRN
BLU
FU1: AZE103
(AEK-506)
T630mA/250V
AC POWER CORD
AZN1383
(ADG-051)
AC 240V
50Hz/60Hz
(NO PLUG)

LINE VOLTAGE SELECTION

Line voltage can be changed with the following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer primary taps.
4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label


POWER SW ASSEMBLY
(HB)
5 (240V)
3
(HE)
(220V)
1 (0V)
C108
0.01
/AC
400V
13
14
FU1
POWER SW
S101
AZS1039
C107
0.0047
/AC 4kV
15
16
BRN
BLU
POWER
TRANSFORMER

9. SPECIFICATIONS

Amplifier Section

- Continous average power output (both channels driven)
  30 Hz ~ 20kHz
  (T.H.D. 0.2%, 8 Ω) . . . . 25 W + 25 W
  1kHz
  (T.H.D. 1%, 8 Ω, DIN) . . . . 30 W + 30 W
- Total harmonic distortion
  (30 Hz ~ 20 kHz, 8 Ω, AUX) 0.2%
- Input sensitivity/impedance
  PHONO . . . . 2.5 mV/50 KΩ
  TUNER, AUX, TAPE 1, TAPE 2 . . . . . 150 mV/50 KΩ
- Output level impedance
  TAPE REC, TAPE 2/ADAPTOR OUT . . . . . . 150 mV
  SPEAKER . . . . 8 Ω
- Frequency response
  PHONO
  (RIAA EQUALIZATION) 30 Hz ~ 20 kHz±1.5 dB
  TUNER, CD/AUX, TAPE PLAY, TAPE 2/ADAPTOR
  . . . . 10 Hz ~ 50 kHz±3 dB
- TONE control
  BASS . . . . ±10 dB (100 Hz)
  TREBLE . . . . ±10 dB (10 kHz)
- LOUDNESS control
  (VOLUME control set at -40 dB position)
  . . . . +6 dB (100 Hz), +3dB (10 kHz)
- Hum and noise (IHF, shorted circuit A NETWORK)
  PHONO . . . . 70 dB
  TUNER, CD/AUX, TAPE PLAY, TAPE 2/ADAPTOR
  . . . . 95 dB

Power supply & miscellaneous

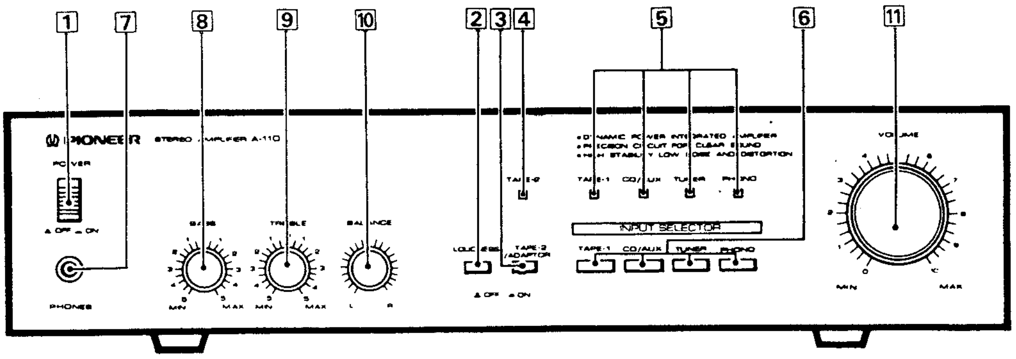
- Power requirements . . . . AC 220 V/240 V,
  50 Hz/60 Hz
- Power consumption . . . . 170 W
- Dimensions . . . . 420 (W) x 98 (H) x 200 (D) mm
  16 (W) x 3-3/4 (H) x 9-3/4 (D) in.
- Weight (net) . . . . 4.5 kg (9 lb 15 oz)

Accessories

- Operating instructions 1

- *Specifications and design subject to possible modification without notice due to improvements.*

10. FRONT PANEL FACILITIES



1 POWER switch

Press to turn power to the unit ON and OFF.

2 LOUDNESS switch

Press to activate the loudness function when listening to music at a low volume: the low and high tones will be emphasized to render sounds rich in power and fullness even at low volume levels.

3 TAPE 2/ADAPTOR switch

Press when using a second tape deck or other adaptor equipment, such as a graphic equalizer, that has been connected to the unit by means of the TAPE 2/ADAPTOR terminals on the rear panel.

4 TAPE 2/ADAPTOR indicator

Illuminates when the TAPE 2/ADAPTOR switch is ON.

5 Function indicators

Illuminate to show which function is currently active, i.e. which function switch has been pressed.

NOTE:
The TAPE 1 indicator will illuminate when none of the INPUT SELECTOR switches has been pressed.

6 INPUT SELECTOR switches

PHONO:	Press when you want to listen to records on a turntable.
TUNER:	Press when you want to listen to AM or FM radio broadcasts with a tuner.
CD/AUX:	Press when you want to listen to the sound from a CD player or other component, such as a TV, connected to the CD/AUX terminal.
TAPE 1:	Press when you want to listen to tape playback from a tape deck.

7 PHONES jack

When using headphones, insert their plug into this jack.

NOTE:
Don't forget to turn the volume down before listening to headphones: turning the volume up too high can result in serious damage to your ears.

8 BASS tone control

Use to adjust low frequency range tones. The center position is the flat (normal) position. Rotating this knob to the right will cause low-frequency tones to be emphasized, while rotating it to the left will cause them to be suppressed.

9 TREBLE tone control

Use to adjust high frequency range tones. The center position is the flat (normal) position. Rotating this knob to the right will cause high-frequency tones to be emphasized, while rotating it to the left will cause them to be suppressed.

10 BALANCE control

Use to adjust the volume balance between the left and right speaker channels. This knob should normally be left in the center position and is generally used only when the sound from one speaker is louder than the sound from the other. In such cases, turn the knob in the opposite direction of the louder speaker to achieve uniform volume from both speakers.

11 VOLUME control

Use to adjust the volume level; rotating it clockwise increases the volume. No sound will be emitted when set to the "0" position, and maximum volume will be output when set to the "10" position.